Inventor: Sally MACKENZIE, et al. For: Implementation of a Mitochondrial Mutator Docket No. 1231-218 SHEET 1/6

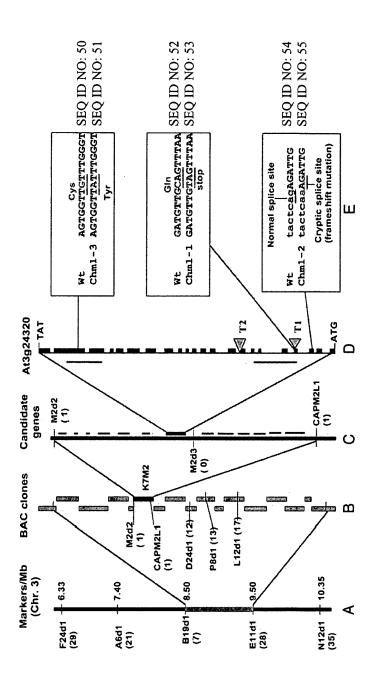


Figure 1

	9	SEQ ID NO:61 SEQ ID NO:62 SEQ ID NO:63 SEQ ID NO:63
	. 627 7 784 7 1096 7 1096 7 1196 8 8 4 4	1 841 746 904 1 1215
ULEYRMG DEYE LEYDDA SEQ ID NO:56  VVLTQMG SEYE LYFEQA SEQ ID NO:57  VVEFROG KEYE LFEMDA SEQ ID NO:58  VLLCRVG EFYE AIGIDA SEQ ID NO:59  ::::::* .***  LLEYRMG DEYE LEYDDA SEQ ID NO:60	• • •	CAAALIGISGLMVPAESACIPHFDSIMLHMKSYDSPVDGKSSFQVEMSEIRSIVSQAISR  :: * * * * * * * * * * * * * * * * * *
27 20 20 20 20 20 20 20 20 20 20 20 20 20	574 728 1039 723 628 1097	782 688 845 11157 842
Muts_Eco 27 Mshl_yeast 96 AtMsh6 39 AtMsh1 13	Muts_Eco 574 Mshl yeast 728 AtMsh6 103 AtMsh1 723 Muts_Eco 628 Mshl yeast 785 AtMsh6 109	AtMshl MutS_Eco Mshl_yeast AtMsh6 AtMshl

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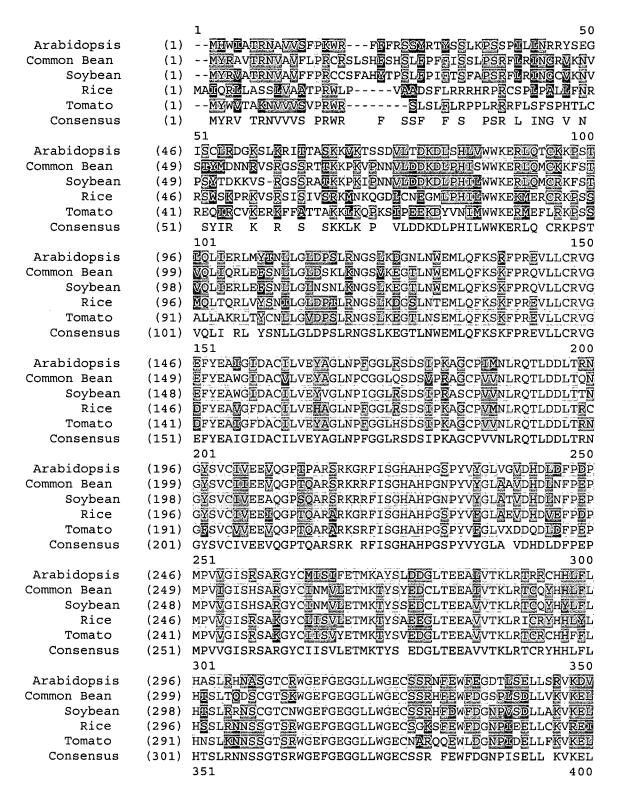


Figure 3

Inventor: Sally MACKENZIE, et al. For: Implementation of a Mitochondrial Mutator

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Arabidopsis	(346)	YGLDDEVSFRNYNVPSKNRPRPLHLGTATQIGALPTEGIPCLLKYLLEST
Common Bean	(349)	YGUDDEVEFRNTEVSSRHRARPLTLGTSTQIGAUHTEGIPSLLKVULSES
Soybean	(348)	YSTODEVEFRATEVSSGHRARPLTLGTSTQIGATETEGIPSLLKVLLESA
Rice	(346)	Y <u>GLEE</u> KTVFRNVSVSLEGRPOPLMLGTATQIGVTPTEGIPSLLKTVLPPN
Tomato	(341)	YGLNDDIPFRNYIVVSENRPRPLHLGTATQIGATOTEGIPCLLKWILDPH
Consensus	(351)	YGLDDEVTFRNVTVSS RPRPLHLGTATQIGAIPTEGIPSLLKVLLPP
		401 450
Arabidopsis	(396)	@SGLPSLYWRDLLLNPPAYDTALKTQETCKLMSTVTCSIPEFTCVSSAKL
Common Bean	(399)	CNGLPWLYTRNLLLNPPSWETASKIQETCKLMSSTTCSIPEFTCWSSAKL
Soybean	(398)	CNGLPWLYTRELLLNPPSYETASKTQATCKLMSSVTCSIPEFTCVSSAKL
Rice	(396)	FGGLPSLYTRDLLLNPPSFDVASSWOEACRLMGSTTCSIPEFTCTPAAKL
Tomato	(391)	CSGLPWLYTEDLLLNPPAYETSSDTQEACRLMMSWTCSIPDFTCTSSAKL
Consensus	(401)	C GLPVLYIRDLLLNPPSYEIASKIQETCKLMSSVTCSIPEFTCVSSAKL
		451 500
Arabidopsis	(446)	VKLLEQREANYBEFCRIKNWBDDWLHWHRHAELVEIBKLLWDPBWWATGB
Common Bean	(449)	VKLLEWREWNHMEFCRIKNWIDETLHMYKTSELNEILKNLTDPFWATTGI
Soybean	(448)	VKLLEWREWNHMEFCRIKNVLDETLOMYSTSELNETLKHLTEPEWWATGU
Rice	(446)	VKLLESKEVNHUEFCRIKNVLDEVLFMGSNAELSAILNKLLDPAAUVTGF
Tomato	(441)	VKLLELREANHWEFCKIKSMVEETLQLYRNSELRAIMELLMDPRWVATGE
Consensus	(451)	VKLLE REVNHIEFCRIKNVLDEIL MYR SEL EILK LIDPTWVATGL
		501 550
Arabidopsis	(496)	KIDEDAFVNECHWASDTIGEMUSEDENESHONWSKCDNWPNEFFYDMESS
Common Bean	(499)	DIDPERMVSGCEVASSKISEDISEDGGN-DOKINSLSIMPYEFFEDTESK
Soybean	(498)	EUDRERUVAGCEIASSKIGEUVSLODDEN-DOKUNSFSFUPHEFFEDMESK
Rice	(496)	KVEADIMVNECSFISORIAEVUSUGGES-DOATUSSEYTPKEFFNGMESS
Tomato	(491)	KVDEDILUVNECGKISCRISETISMHGEN-DOKTSSYPITPNDFFEDMELL
Consensus	(501)	KIDFDTLVNEC AS KISEIISLDGEN DQKISS IP EFFEDMES
	(/	551 600
Arabidopsis	(546)	WRGRMKGTHTEEEITQVEKSAEALSTAVAEDFHPTTSRTKATTASTGGPK
Common Bean		
	(548)	WKGRIKRVHIDEVETAVOKAAEVI HIAVTEDEVAMVSRMKATTAPI GGPR
	(548) (547)	WKGRIKRYHTDEVETAVOKAAEVLHIJAVTEDFYPVVSRYKATTAPLGGPR WKGRIKRIHUDDVETAVEKAAEALHIJAVTEDFYDVVSRYKATVADLGGPK
Soybean	(547)	WKGRUKRUHUDDVFTAVEKAAEALHUAVTEDFYPVVSRUKAIVAPLGGPK
Soybean Rice	(547) (545)	WKGRUKRTHUDDVETAVEKAAEALHUAVTEDFMPVVSRTKAIVAPLGGPK WKGRVKRVHAEEEESNVDIAAEALSTAVIEDFUPITSRVKSVMSSNGSSK
Soybean Rice Tomato	(547) (545) (540)	WKGRUKRUHUDDVETAVEKAAEALHUAVUEDFUPVVSRUKAIVAPUGGPK WKGRVKRVHAEEEFSNVDIAAEALSTAVIEDFUPIISRVKSVMSSNGSSK WKGRVKRUHUEEAMAEVEKAADALSDAUUEDFUPUSRURAUMAPUGGTK
Soybean Rice	(547) (545)	WKGRUKRIHUDDVETAVEKAAEALHUAVIEDFUPVVSRUKAIVAPUGGPK WKGRVKRVHAEEEESNVDIAAEALSTAVIEDFUPIISRVKSVMSSNGSSK WKGRVKRIHUEEAMAEVEKAADALSUATTEDFUPUTSRURAIMAPUGGTK WKGRVKRIHIEE FT VEKAAEALSIAVTEDFUPIISRIKAIMAPUGGPK
Soybean Rice Tomato Consensus	(547) (545) (540) (551)	WKGRUKRIHIDDVETAVEKAAEALHIAVIEDFUPVVSRIKAIVAPPEGGPK WKGRVKRVHAEEEFSNVDIAAEALSTAVIEDFUPIISRVKSVMSSNGSSK WKGRVKRIHIEEAMAEVEKAADALSTATTEDFUPIISRIKATMAPPEGTK WKGRVKRIHIEE FT VEKAAEALSIAVTEDFUPIISRIKATMAPPEGFK 601 650
Soybean Rice Tomato Consensus Arabidopsis	(547) (545) (540) (551) (596)	WKGRUKRIHUDDVETAVEKAAEALHUAVIEDFUPVVSRIKAIVAPPEGEK WKGRVKRVHAEEEFSNVDIAAEALSTAVIEDFUPIISRVKSVMSSNGSSK WKGRVKRIHUEEAMAEVEKAADALSIAITEDFUPISRIRATMAPPEGIK WKGRVKRIHIEE FT VEKAAEALSIAVTEDFUPIISRIKATMAPPEGEK 601 650 GEIÄYAREHESVWFKGKRFTPSTWAGTAGEDOIKOLKPAEDSKGKKVGEE
Soybean Rice Tomato Consensus Arabidopsis Common Bean	(547) (545) (540) (551) (596) (598)	WKGRUKRTHUDDVETAVEKAAEALHUAVIEDF MPVVSRUKAIVAPPEGEK WKGRVKRVHAEEEFSNVDIAAEALSTAVIEDF PIISRVKSVMSSNGSSK WKGRVKRTHUEEAMAEVEKAADALSUAITEDF PIISRURATMAPPEGIK WKGRVKRIHIEE FT VEKAAEALSIAVTEDF LPIISRIKATMAPLGGPK 601 650 GEIAYAREHESVWFKGKRFTPSIWAGTAGEDOIKOLKPAIDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSIWAGTAGEDOIKOLKPAIDSKGKKVGEE
Soybean Rice Tomato Consensus Arabidopsis Common Bean Soybean	(547) (545) (540) (551) (596) (598) (597)	WKGRUKRTHIEDDVETAVEKAAEALHIAVITEDF PVVSRTKAIVAPEGER WKGRVKRVHAEEEFSNVDIAAEALSTAVIEDF PITSRVKSVMSSNGSSK WKGRVKRIHIEEAMAEVEKAADALSIATTEDF PITSRTRATMAPEGETK WKGRVKRIHIEE FT VEKAAEALSIAVTEDF LPIISRIKATMAPLGGPK 601 650 GEIAYAREHESVWFKGKRFTPSTWAGTAGEDOIKOLKPALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGSPGEEOIKOLRHALDSKGKRVGEE GEISYAREHEAVWFKGKRFTPNTWAGSPGEEOIKOLRHALDSKGKRVGEE
Soybean Rice Tomato Consensus Arabidopsis Common Bean Soybean Rice	(547) (545) (540) (551) (596) (598) (597) (595)	WKGRUKRTHIEDDVETAVEKAAEALHIAVIEDF PVVSRTKAIVAPEGERK WKGRUKRVHAEEEFSNVDIAAEALSTAVIEDF PITSRVKSVMSSNGSSK WKGRUKRTHIEEEMAEVEKAADALSIATEDF PITSRTRATMAPEGETK WKGRUKRTHIEE FT VEKAAEALSIAVTEDF PITSRTKATMAPEGERK 601 650 GEIAYAREHESVWFKGKRFTPSTWAGTAGEDOIKOLKPAEDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWSGSPGEEOIKOLRHAEDSKGKRVGEE GEISYAREOFAVWFKGKRFTPNTWAGSPGEEOIKOLRHAEDSKGRKVGEE GEISYAREOFAVWFKGKRFTPNTWAGSPGEEOIKOLRHAEDSKGRKVGEE
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato	(547) (545) (540) (551) (596) (598) (597) (595) (590)	WKGRÜKRTHEDDVETAVEKAAEALHEAVIEDF PVVSRTKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDF PITSRVKSVMSSNGSSK WKGRÜKRIHIEEEMAEVEKAADALSIAITEDF PITSRTRATMAPEGETK WKGRVKRIHIEE FT VEKAAEALSIAVTEDF LPITSRIKATMAPEGERK 601 650 GEIÄYAREHESVWFKGKRFTPSTWAGTAGED IKOLKPALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGSPGEE IKOLRHALDSKGKRVGEE GEISYAREDEAVWFKGKRFTPNTWAGSPGEE IKOLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNTWANTPGELOIKOLKPATDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNTWANTPGELOIKOLKPATDSKGRKVGEE
Soybean Rice Tomato Consensus Arabidopsis Common Bean Soybean Rice	(547) (545) (540) (551) (596) (598) (597) (595)	WKGRÜKRTHEDDVETAVEKAAEALHEAVIEDF MPVVSREKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDF PITSRÜKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATTEDF PITSRÜKRYMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATTEDF PITSRÜKRTMAPEGIK WKGRÜKRTHEEE FT VEKAAEALSIAVTEDF LPITSRÜKATMAPEGERK 601 650 GEIÄYAREHESVWFKGKRFTPSTWAGTAGED IKQLKEALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGTAGED IKQLKEALDSKGKRVGEE GEISYARE QEAVWFKGKRFTPNTWAGSPGEE QIKQLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNTWANTPGELQIKQLKEALDSKGRKVGEE GEILYAREHEAVWFKGKRFVPTWAGTAGEEQIKQLREALDSKGKKVGEE GEILYAREHEAVWFKGKRFTPSLWAGTAGEEQIKQLREALDSKGKKVGEE
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus	(547) (545) (540) (551) (596) (598) (597) (595) (590) (601)	WKGRÜKRTHEDDVETAVEKAAEALHEAVIEDF PVVSRIKAIVAPEGEK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDF PITSRVKSVMSSNGSSK WKGRÜKRIHIEEAMAEVEKAADALSIAHTEDF PITSRIKATMAPEGETK WKGRÜKRIHIEE FT VEKAAEALSIAVTEDF LPHISRIKATMAPEGEK 601 650 GEIÄYAREHESVWFKGKRFTPSTWAGTAGED IKOLKPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSTWAGSPGEE IKOLKPALDSKGKRVGEE GEISYAREDEAVWFKGKRFTPNTWAGSPGEE IKOLKPALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNTWANTPGELOIKOLKPALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNTWANTPGELOIKOLKPALDSKGKKVGEE GEILYAREHGÄVWFKGKRFVPTVWAGTAGEE OIKOLKPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEE OIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEE OIKOLRPALDSKGKKVGEE
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus  Arabidopsis	(547) (545) (540) (551) (596) (598) (597) (595) (590) (601)	WKGRÜKRTHEDDVETAVEKAAEALHEAVIEDF MPWSRIKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDF PITSRÜKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATEDF PITSRÜKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATEDF PITSRÜRATMAPEGIK WKGRÜKRTHEEE FT VEKAAEALSIAVTEDF LPITSRÜKATMAPEGERK 601 650 GEIÄYAREHESVWFKGKRFTPSTWAGTAGED OIK OLKPALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGTAGED OIK OLKPALDSKGKRVGEE GEISYARE OEAVWFKGKRFTPNTWAGSPGEE OIK OLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNTWANTPGELOIK OLKPALDSKGRKVGEE GEILYAREHEAVWFKGKRFTPSTWAGTAGEE OIK OLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTAGEE OIK OLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTAGEE OIK OLRPALDSKGKKVGEE 651 700 WFTTPKVEIATVRYHEASENAKARVLETLRELSVKLOTKINVLVFASMLE
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus  Arabidopsis Common Bean	(547) (545) (540) (551) (596) (598) (597) (595) (590) (601) (646) (648)	WKGRÜKRTHEDDVETAVEKAAEALHEAVIEDF PVVSREKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDF PTISRMKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATTEDF PTISRTRATMAPEGIK WKGRÜKRTHEEEAMAEVEKAADALSTATTEDF PTISRTRATMAPEGIK WKGRÜKRTHEE FT VEKAAEALSIAVTEDF PIISRIKATMAPEGERK 601 650 GEIAYAREHESVWFKGKRFTPSTWAGTAGED OIKOLKPALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGTAGED OIKOLKPALDSKGKKVGEE GEISYAREAVWFKGKRFTPNTWAGTAGEE OIKOLKPALDSKGKKVGEE GEISYAKEHESVWFKGRFTPNTWANTPGELOIKOLKPALDSKGKKVGEE GEISYAKEHESVWFKGKRFTPNTWANTPGELOIKOLKPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSTWAGTAGEE OIKOLKPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTAGEE OIKOLKPALDSKGKKVGEE 651 700 WFTTPKVEIALVRYHEASENAKARVLETLRELSVKLOTKINNLVFASMLE WFTTPKVEIALVRYHEASENAKARVLETLRELSVKLOTKINNLVFASMLE WFTTPKVEAALTRYHEANAKATERVLETLRELSTELHYSINTLWFSSTEL
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean	(547) (545) (540) (551) (596) (598) (597) (595) (590) (601) (646) (648) (647)	WKGRÜKRTHIEDDVETAVEKAAEALHIAVITEDF MYVSRIKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDFI PITSRWKSVMSSNGSSK WKGRÜKRTHIEEEMAEVEKAADALSIATTEDFI PITSRTRATMAPIGETK WKGRÜKRTHIEE FT VEKAAEALSIAVTEDFLPIISRIKATMAPIGERK 601 650 GEIAYAREHESVWFKGKRFTPSTWAGTAGEDOIKOLKPALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGTAGEDOIKOLKPALDSKGKKVGEE GEISYAREDEAVWFKGKRFTPNIWAGSPGEEQIKOLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNIWAGSPGEEQIKOLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNIWAGSPGEEQIKOLRPALDSKGKKVGEE GEISYAKEHESVWFKGKRFVPTVWAGTAGEEQIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFVPTVWAGTAGEEQIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEEQIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEEQIKOLRPALDSKGKKVGEE GFISYAREHEAVWFKGKRFTPSLWAGTPGEEQIKOLRPALDSKGKKVGEE
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus	(547) (545) (540) (551) (596) (598) (597) (595) (590) (601) (646) (648) (647) (645)	WKGRÜKRTHEDDVETAVEKAAEALHEAVIEDF PVVSREKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDF PTISRWKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATEDF PTISRWKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATEDF PTISRWKSVMSSNGSSK WKGRÜKRTHEEEAMAEVEKAADALSTATEDF PTISRWKSVMSSNGSSK WKGRÜKRTHEE FT VEKAAEALSIAVTEDF PTISRWAPPEGETK 601 650 GEIAYAREHESVWFKGKRFTPSTWAGTAGEDOIKOLKEALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGTAGEDOIKOLKEALDSKGKKVGEE GEISYAREQEAVWFKGKRFTPNTWAGTAGEEOIKOLKEALDSKGKKVGEE GEISYAKEHESVWFKGRRFTPNTWAGTAGEEOIKOLKEALDSKGKKVGEE GEISYAKEHESVWFKGKRFVPTVWAGTAGEEOIKOLKEALDSKGKKVGEE GEISYAREHEAVWFKGKRFVPTVWAGTAGEEOIKOLKEALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEEOIKOLKEALDSKGKKVGEE 651 700 WFTTPKVEIALVRYHEASENAKARVLETLRELSVKLOTKINVLVFASMLU WFTTPKVEIALVRYHEASENAKARVLETLRELSVKLOTKINVLVFASMLU WFTTPKVEAALTRYHEANAKAKERVLETLRELAGELHYSINTLVFSSMLU WFTTPKVEAALTRYHEANAKAKERVLETLRELAGELHYSINTLVFSSMLU WFTTIKVENALTRYHEANAKAKERVLETLRELSSELOOKINVLVFSSMLU WFTTIKVENALTRYHEACDNAKRKVLETLRELSSELOOKINVLVFCSTMLU
Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean Rice Tomato Consensus  Arabidopsis Common Bean Soybean	(547) (545) (540) (551) (596) (598) (597) (595) (590) (601) (646) (648) (647)	WKGRÜKRTHIEDDVETAVEKAAEALHIAVITEDF MYVSRIKAIVAPEGERK WKGRÜKRVHAEEEFSNVDIAAEALSTAVIEDFI PITSRWKSVMSSNGSSK WKGRÜKRTHIEEEMAEVEKAADALSIATTEDFI PITSRTRATMAPIGETK WKGRÜKRTHIEE FT VEKAAEALSIAVTEDFLPIISRIKATMAPIGERK 601 650 GEIAYAREHESVWFKGKRFTPSTWAGTAGEDOIKOLKPALDSKGKKVGEE GEISYAREHEAVWFRGKRFTPSTWAGTAGEDOIKOLKPALDSKGKKVGEE GEISYAREDEAVWFKGKRFTPNIWAGSPGEEQIKOLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNIWAGSPGEEQIKOLRHALDSKGRKVGEE GEISYAKEHESVWFKGRRFTPNIWAGSPGEEQIKOLRPALDSKGKKVGEE GEISYAKEHESVWFKGKRFVPTVWAGTAGEEQIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFVPTVWAGTAGEEQIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEEQIKOLRPALDSKGKKVGEE GEISYAREHEAVWFKGKRFTPSLWAGTPGEEQIKOLRPALDSKGKKVGEE GFISYAREHEAVWFKGKRFTPSLWAGTPGEEQIKOLRPALDSKGKKVGEE

Figure 3 (cont'd)

Inventor: Sally MACKENZIE, et al.

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Arabidopsis (696)WISKALFSHACEGRRRKWWEPTUVGFSLDEGAKPUDGASRMKUEGUSPYW MINKALFAHASEGRRRRWVEPTUAESNGFEDVKSSDKIHGMKIVGLAPYW Common Bean Soybean (697) MIAKALFAHASEGRRRWEPTEVESHGFEDVKSLDKUHGMKTSGILPYW Rice (695) IIIKALFGHVSEGRRRGWILPTISP--LCKDNVIEBISSEMEISGTFPYW (690) MIAKSLFSHVSEGRRRNWEEPTETQFNKCQDTEAENGEDGMKEIGESPYW Tomato (701) VITKALFAHASEGRRRRWVFPTL Consensus ED KSLD T GMKISGLSPYW Arabidopsis (746)FDWSSGTAVHNTVDMOSEFELTGPNGGGKSSELRSECAAALLGESGEMVP Common Bean (748) FHTAEG-IMRNDVDMOSEFELTGPNGGGKSSELRSTCAAALLGTEGEMVP (747) FHEAEG-VVRNDVDMQSEFELTGPNGGGKSSFLRSTCAAALLGTCGEMVP Soybean Rice (743) LDTNQGNAMLNDVHMHSLFMLTGPNGGGKSSMLRSWCAAALLGTCGMVP (740) FDAARGTGVQDTVDMQSMFELTGPNGGGKSSELRSECAAALLGMCGFMVP Tomato Consensus (751) FDIA G AV NDVDMQSLFLLTGPNGGGKSSLLRSICAAALLGICGLMVP (796) AESACIPHFDSIMLHMKSYDSPVDGKSSFQWEMSETRSTWSQATSRSLVL Arabidopsis (797) AESAVIPMFDSITLHMKSYDSPADKKSSFOVEMSEERSEIGGTTKRSLVL Common Bean (796) AESALIPAFDSITLHMKSYDSPADKKSSFOVEMSELRSIIGGTTNRSLVL Soybean Rice (793) AASAVIPHFDSIMLHMKAYDSPADGKSSFQ EMSETRSEVCRATARSLVL (790) AESAMIPHFDSIMLHMKSYDSPVDGKSSFQTEMSETRSTTTGATSRSLVL Tomato Consensus (801) AESAVIPHFDSIMLHMKSYDSPADGKSSFOVEMSEIRSII GATSRSLVL IDEICRGTETAKGTCIAGSWESLDTSGCLGIVSTHLHGIFSLPLTAKNI Arabidopsis (846)Common Bean (847) MDEICRGTETAKGTCIAGSITETLERIGCIGWSTHLHGIFTLPLNIKST (846) MDEICRGTETAKGTCIAGSWETLDGIGCLGINSTHLHGIFTLPLNKKNT Soybean (843) IDEICRGTETAKGTCIAGSITERLDNIGGIGITSTHLHGIFDLPLSIHNT Rice IDEICRGTETAKGTCIAGSWIETLDEIGCLGIVSTHLHGIFDLPLKIKKI Tomato (840) Consensus (851) IDEICRGTETAKGTCIAGSIIETLD IGCLGIVSTHLHGIFTLPL IKNT TWKAMGAENVEGQTKPTWKLTDGVCRESLAFETAKREGVPESVIQRAEAL Arabidopsis (896) Common Bean WHKAMGTTCIDGQILPTWKLTDGVCKESLAFETAIREGTPEPTIRRAECL Soybean (896) VHKAMGTTSIDGQIMPTWKLTDGVCKESLAFETAKREGIPEHIVRRAEYL (893) DFKAMGTEITDRCTQPTWKLMDGTCRESLAFQTARKEGMPDLTTRRAEEL Rice VYKAMGAEYVDGQPIPTWKLIDGICKESLAFETAQREGIPEIIIIQRAEEL Tomato (901)VHKAMGTE IDGQIIPTWKLTDGVCKESLAFETAKREGIPE IIRRAE L Consensus (946) YLSVYAK------DASAEVMKPDQUITSSNN-----DQQIQKPV Arabidopsis Common Bean (947) YKSVYA----EENFPNEEKFSTCNWANWNETSLY----SKGFLSGA (946) YQLVYAKEMLFAENFPNEEKFSTCUNMNNUNGUHUH-----SKRFLSGA Soybean (943) YLAMSTN-----SKHTSSAVHHEISLANSTVNSLVEKPNYLRNGLELQS Rice (940) YNSAYGNQIPRKIDQIRPLRSDIDLNSTDNSSDQLNGTRQIALDSSTKLM Tomato Consensus (951) Y SVYA EK S INI NL TTSL 1001 1050 Arabidopsis (979) SSERSTEKDIAKATVKICGKKMTEP-----EATECUSTGARELPPP Common Bean NQMEGFRQEWERATTWICQDYMERKNKKIALELPETKCLLIGKREQPPP Soybean (990) NOMENDREEVERANTYICODHUKDIKCKKIALELTEIKCULIGTRELPPP (987)GSFGLERKELESVÄTTICKKKLLDLYNKRSISELIEVVCVANGAREOPPP Rice Tomato (990)HRMGIISSKKLEDATCILICEKKLIELYKMKNPSEMPMVNCVLIAAREOPAP Consensus (1001)M ILRKELERAITVIC KKIIEL KK EL EI CLLIGAREQPPP 1051 1100

Figure 3 (cont'd)

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Arabidopsis Common Bean Soybean Rice Tomato Consensus	(1020) (1036) (1040) (1037) (1040) (1051)	STVGSSCVYVMRRPDKRLYTGQTDDLEGRTRAHRAKEGTQGSSFLYLMVQ SVVGSSSVYVMFTPDKKLYVGETDDLEGRVRRHRTKEGMDEASFLYFLVP SVVGSSSVYVMFRPDKKLYVGETDDLEGRVRRHRTKEGMHDASFLYFLVP STVGRSSTYVMIRRDSKLYTGQTDDLVGRTSAHRSKEGMQDATILYTIVP STTGASSVYTMLRPDKKLYVGQTDDLEGRVRAHRTKEGMENASFLYFLVS STVGSSSVYVM RPDKKLYVGQTDDLEGRVRAHRTKEGM DASFLYFLVP
Arabidopsis Common Bean Soybean Rice Tomato Consensus	(1070) (1086) (1090) (1087) (1090) (1101)	1101 GKSMACQLETLLINQLHEQGNSLANTADGKHRNFGTSSSLSTSDVVSIL- GKSMACQFESLLINQLSSQGFQLSNMADGKHRNFGTSNTYA GKSMACQFESLLINQLSGQGFQLSNMADGKHRNFGTSNTYT GKSMACQLETLLINQLPLKGFKLINKADGKHRNFGISLVPGEAIAA GKSMACQLETLLINQLPNHGFQLMNADGKHRNFG GKSMACQLETLLINQL QGFQLSNIADGKHRNFGTS L
Arabidopsis Common Bean Soybean Rice Tomato Consensus	SEQ ID	NO: 3 NO: 47 NO: 31 NO: 22 NO: 40 NO: 65

Figure 3 (cont'd)